Phytoplankton Productivity Experiments and Nutrient Measurements in the Labrador Sea from 15 Oct. to 31 Oct. 1977

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Fisheries and Marine Service

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PHYTOPLANKTON PRODUCTIVITY EXPERIMENTS AND NUTRIENT MEASUREMENTS IN THE LABRADOR SEA FROM 15 OCTOBER TO 31 OCTOBER 1977

by

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ABSTRACT

Irwin, B., P. Evans and T. Platt. 1978. Phytoplankton productivity experiments and nutrient measurements in the Labrador Sea from 15 October to 31 October 1977. Fish. Mar. Serv. Data Rpt. No. 83: 40 pp.

Series of primary production experiments and related nutrient determinations were made from the Labrador Sea from 15 October to 31 October 1977. In this report we make available the raw data and also the fitted light saturation parameters with confidence limits.

RESUMÉ

Irwin, B., P. Evans and T. Platt. 1978. Phytoplankton productivity experiments and nutrient measurements in the Labrador Sea from 15 October to 31 October 1977. Fish. Mar. Serv. Data Rpt. No. 83: 40 pp.

Durant la période du 15 octobre au 31 octobre des séries d'expériences sur la détermination de la production primaire et des sels nutritifs furent réalisées de la mer Labrador. Dans le présent rapport nous présentons les données brutes sur ces expériences; ainsi que les paramètres avec leur intervalles de confiance qui furent calculés pour représenter les courbes de production en fonction de la lumière.

INTRODUCTION

This is the second in a series of data reports giving results of experiments on photosynthetic production versus light intensity for natural phytoplankton populations in the Atlantic north of 50°N. In the first report (Irwin et al., in prep) samples were collected in the Northern half of the Labrador Sea and Baffin Bay. In the present study samples were collected from CSS Hudson in the southern half of the Labrador Sea.

SAMPLING

Samples for light saturation experiments were collected with 30 l Niskin bottles from 10 and 30 m. Surface samples were collected with a plastic bucket.

METHODS

Productivity

The C^{14} method as described in Strickland and Parsons 1972 was used. For light saturation experiments 20 light and 2 dark bottles were innoculated with 1 ml of sodium bicarbonate C^{14} having an approximate activity of 10 µci. The exact activity of the solution was determined by counting 10 µl aliquots in a scintillation counter. The innoculated bottles were placed in temperature controlled incubators and illuminated by a 150 watt floodlight (GTE Sylvania PAR 150). 4 light and 2 dark bottles were innoculated with the same solution for "in situ" surface productivity experiments. The bottles were innoculated in a shallow plexiglass temperature controlled incubator on the deck of the ship.

All incubations were terminated at the end of 4 hours. Samples were filtered onto 2.5 cm diameter, 0.45 µ pore size membrane filters. The filters were dried in a desiccator, exposed to HCl fumes for 10 minutes, and counted in a scintillation counter.

Chlorophyll a

Replicate samples were filtered onto 5.5 cm diameter glass fibre filters. The fluorometric technique of Yentsch and Menzel (1963) as modified by Holm-Hansen et al. (1965) was used. The fluorometer was calibrated with solutions of pure chlorophyll a purchased from Sigma Chemicals.

Light intensity

Total radiation in each compartment of the incubators was measured with an International Light IL700 radiometer. Light quality was measured with an ISCO spectroradiometer.

Nutrients

Four inorganic nutrient concentrations were routinely measured. Phosphate, nitrate and silicate were measured on a Technicon II Autoanalyser and ammonia was measured with a spectrophotometer. The following methods were used:

1) Silicate - Industrial method 186-72W
2) Phosphate - Industrial method 155-71W
3) Nitrate - Industrial method 158-71W
4) Ammonia - The phenolhypochlorite method as described by Solorzano (1969)

Incident radiation

Total incident radiation was measured with an Eppley 40 Junction pyranometer mounted on the bridge of the ship. The output from the pyranometer was recorded on a strip chart recorder. Hourly and daily radiation was estimated by integrating the record with a planimeter.

Light saturation parameters

Production rates were normalized to unit chlorophyll and plotted against light intensity. Three parameters were calculated (Platt et al. 1975; Jassby and Platt 1976).

1) the initial slope α
2) the respiration R^B
3) the assimilation number P_m^B

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LIGHT SATURATION TABLES

STATION L-1

Lat.: 62°08.0'N Long.: 63°04.8'W

Date: 15/10/77 Area: Labrador Sea Depth: 10 m

Light Intensity W m^{-2}	Specific Production mg C(mg Chl a)$^{-1}hr^{-1}$	Light Intensity W m^{-2}	Specific Production mg C(mg Chl a)$^{-1}hr^{-1}$
189.6	1.36	217.9	1.31
114.7	1.62	92.6	1.50
52.4	1.17	34.5	1.35
23.9	0.82	19.2	0.93
13.5	0.52	10.6	0.60
6.4	0.26	5.7	0.29
3.7	0.11	3.3	0.18
2.1	0.04	2.0	0.08
1.2	0.02	1.0	0.04
0.7	0.00	0.7	0.02

Sample Temperature: 1.7°C

Incubation Temperature: 7.5°C

	mg-at m^{-3}
Nitrate	0.88
Ammonia	1.39
Phosphate	0.65
Silicate	2.36

Chlorophyll 1.40 mg m^{-3}

Salinity - °/₀₀

		90% Confidence Interval lower	upper
α mg C(mg Chl a)$^{-1}hr^{-1}(W\ m^{-2})^{-1}$	0.05	0.04	0.06
R^B mg C(mg Chl a)$^{-1}hr^{-1}$	-0.02	-0.06	0.01
P^B_m mg C(mg Chl a)$^{-1}hr^{-1}$	1.54	1.42	1.66

STATION L-1

Lat.: 62°08.0'N Long.: 63°04.8'W

Date: 15/10/77 Area: Labrador Sea Depth: 30 m

Light Intensity W m^{-2}	Specific Production mg C(mg Chl a)$^{-1}hr^{-1}$	Light Intensity W m^{-2}	Specific Production mg C(mg Chl a)$^{-1}hr^{-1}$
94.8	1.16	252.8	1.21
44.4	1.35	132.0	1.23
22.5	0.99	64.0	1.00
11.4	0.85	30.6	0.70
6.2	0.48	15.5	0.40
3.1	0.23	8.6	0.21
1.8	0.15	5.4	0.12
1.1	0.06	3.7	0.06
0.6	0.03	2.2	0.03
0.3	0.01	1.3	0.01

Sample Temperature: 2.0°C

Incubation Temperature: 7.5°C

	mg-at m^{-3}
Nitrate	1.22
Ammonia	1.20
Phosphate	0.63
Silicate	2.25

Chlorophyll 1.62 mg m^{-3}

Salinity - °/₀₀

		90% Confidence Interval lower	upper
α mg C(mg Chl a)$^{-1}hr^{-1}$(W m^{-2})$^{-1}$	0.02	0.01	0.04
R^B mg C(mg Chl a)$^{-1}hr^{-1}$	0.03	-0.03	0.09
P^B_m mg C(mg Chl a)$^{-1}hr^{-1}$	1.30	0.97	1.66

STATION L-2

Lat.: 61°36.2'N Long.: 60°08.5'W

Date: 16/10/77 Area: Labrador Sea Depth: 10 m

Light Intensity W m^{-2}	Specific Production mg C(mg Chl a)$^{-1}$$hr^{-1}$	Light Intensity W m^{-2}	Specific Production mg C(mg Chl a)$^{-1}$$hr^{-1}$
171.2	1.63	272.8	1.88
45.0	1.49	121.0	1.25
19.8	1.09	54.0	1.69
10.4	0.63	23.5	0.88
5.7	0.37	11.6	0.48
3.7	0.19	6.5	0.30
1.9	0.07	3.9	0.13
1.2	0.02	2.5	0.05
0.8	0.01	1.8	0.04
	0.00	1.2	0.01

Sample Temperature: 2.9°C Incubation Temperature: 7.5°C

	mg-at m^{-3}
Nitrate	1.27
Ammonia	0.95
Phosphate	0.43
Silicate	2.27

Chlorophyll 1.70 mg m^{-3}

Salinity - °/₀₀

		90% Confidence Interval lower	upper
α mg C(mg Chl a)$^{-1}$$hr^{-1}$(W m^{-2})$^{-1}$	0.04	0.04	0.05
P_R^B mg C(mg Chl a)$^{-1}$$hr^{-1}$	-0.05	-0.07	-0.02
P_m^B mg C(mg Chl a)$^{-1}$$hr^{-1}$	1.73	1.61	1.85

STATION L-2

Lat.: 61°36.2'N

Long.: 60°08.5'W

Date: 16/10/77

Area: Labrador Sea

Depth: 30 m

Light Intensity W m^{-2}	Specific Production mg C(mg Chl a)$^{-1}$$hr^{-1}$	Light Intensity W m^{-2}	Specific Production mg C(mg Chl a)$^{-1}$$hr^{-1}$
178.4	1.31	283.2	1.54
76.0	1.70	145.0	1.23
34.1	1.39	65.0	1.52
16.2	0.93	27.1	1.05
9.2	0.52	12.9	0.54
5.2	0.24	7.2	0.36
2.7	0.17	5.3	0.21
1.6	0.07	3.2	0.14
0.8	0.01	2.0	0.06
		1.2	0.03

Sample Temperature: 3.5°C

Incubation Temperature: 7.5°C

	mg-at m^{-3}
Nitrate	1.23
Ammonia	1.09
Phosphate	0.55
Silicate	2.37

Chlorophyll 1.23 mg m^{-3}

Salinity - °/₀₀

		90% Confidence Interval lower	upper
α mg C(mg Chl a)$^{-1}$$hr^{-1}$(W m^{-2})$^{-1}$	0.06	0.05	0.06
R^B mg C(mg Chl a)$^{-1}$$hr^{-1}$	-0.04	-0.07	0.00
P_m^B mg C(mg Chl a)$^{-1}$$hr^{-1}$	1.55	1.45	1.65

STATION L-3

Lat.: 60°42.2'N

Long.: 60°56.2'W

Date: 17/10/77

Area: Labrador Sea

Depth: 10 m

Light Intensity W m^{-2}	Specific Production mg C(mg Chl a)$^{-1}hr^{-1}$	Light Intensity W m^{-2}	Specific Production mg C(mg Chl a)$^{-1}hr^{-1}$
241.6	1.33	307.2	1.31
129.0	1.35	128.0	1.24
60.0	1.20	45.0	1.16
30.3	0.88	28.8	0.89
13.2	0.53	13.5	0.67
7.3	0.32	7.3	0.42
4.1	0.13	4.4	0.26
2.0	0.07	2.3	0.16
1.3	0.01	1.4	0.02
0.8	0.01	0.9	0.00

Sample Temperature: 3.3°C

Incubation Temperature: 6.5°C

	mg-at m^{-3}
Nitrate	2.08
Ammonia	0.72
Phosphate	0.45
Silicate	2.64

Chlorophyll 0.90 mg m^{-3}

Salinity - °/₀₀

		90% Confidence Interval lower	upper
α mg C(mg Chl a)$^{-1}hr^{-1}$(W m^{-2})$^{-1}$	0.06	0.05	0.07
R^B mg C(mg Chl a)$^{-1}hr^{-1}$	-0.04	-0.08	0.00
P_m^B mg C(mg Chl a)$^{-1}hr^{-1}$	1.29	1.22	1.35

STATION L-3

Lat.: 60°42.2'N Long.: 60°56.2'W

Date: 17/10/77 Area: Labrador Sea Depth: 30 m

Light Intensity W m^{-2}	Specific Production mg C(mg Chl a)$^{-1}hr^{-1}$	Light Intensity W m^{-2}	Specific Production mg C(mg Chl a)$^{-1}hr^{-1}$
221.6	1.26	220.0	1.10
127.0	1.25	111.0	1.40
53.0	1.05	48.0	1.46
27.4	1.09	21.6	0.94
11.3	0.65	11.5	0.57
6.6	0.45	6.3	0.38
4.2	0.23	4.3	0.24
2.3	0.08	2.2	0.15
1.3	0.06	1.3	0.03
0.7	0.04	0.8	0.02

Sample Temperature: 3.3°C

Incubation Temperature: 6.5°C

	mg-at m^{-3}
Nitrate	3.93
Ammonia	0.78
Phosphate	0.50
Silicate	3.55

Chlorophyll 0.56 mg m^{-3}

Salinity - °/₀₀

		90% Confidence Interval lower	upper
α mg C(mg Chl a)$^{-1}hr^{-1}(W\ m^{-2})^{-1}$	0.07	0.06	0.08
R^B mg C(mg Chl a)$^{-1}hr^{-1}$	-0.04	-0.06	-0.01
P^B_m mg C(mg Chl a)$^{-1}hr^{-1}$	1.31	1.24	1.39

STATION L-4

Lat.: 58°42.0'N Long.: 62°21.5'W

Date: 19/10/77 Area: Labrador Sea Depth: 10 m

Light Intensity $W\ m^{-2}$	Specific Production mg C(mg Chl a)$^{-1}hr^{-1}$	Light Intensity $W\ m^{-2}$	Specific Production mg C(mg Chl a)$^{-1}hr^{-1}$
232.8	0.90	308.0	0.81
146.0	0.72	112.0	0.80
61.0	0.79	45.0	0.79
28.6	0.82	22.3	0.68
8.4	0.54	6.6	0.55
4.5	0.28	4.2	0.32
2.9	0.10	2.7	0.13
1.2	0.04	1.2	0.05
0.9	0.02	0.9	0.01
0.6	0.01	0.5	0.00

Sample Temperature: 1.3°C Incubation Temperature: 4.5°C

	mg-at m^{-3}
Nitrate	2.01
Ammonia	1.13
Phosphate	0.91
Silicate	3.04

Chlorophyll 1.02 mg m^{-3}

Salinity - °/₀₀

		90% Confidence Interval lower	upper
α mg C(mg Chl a)$^{-1}hr^{-1}(W\ m^{-2})^{-1}$	0.08	0.06	0.09
R^B mg C(mg Chl a)$^{-1}hr^{-1}$	-0.05	-0.08	-0.02
P^B_m mg C(mg Chl a)$^{-1}hr^{-1}$	0.86	0.81	0.90

STATION L-4

Lat.: 58°42.0'N Long.: 62°21.5'W

Date: 19/10/77 Area: Labrador Sea Depth: 30 m

Light Intensity W m^{-2}	Specific Production mg C(mg Chl a)$^{-1}$$hr^{-1}$	Light Intensity W m^{-2}	Specific Production mg C(mg Chl a)$^{-1}$$hr^{-1}$
219.2	0.69	121.6	0.84
94.0	0.79	62.0	0.69
36.8	0.80	28.4	0.68
19.6	0.91	13.3	0.67
5.6	0.43	4.1	0.38
4.1	0.32	2.6	0.18
2.6	0.13	1.8	0.11
1.1	0.05	0.8	0.01
0.8	0.04		
0.4	0.02		

Sample Temperature: 1.1°C

Incubation Temperature: 4.5°C

	mg-at m^{-3}
Nitrate	2.35
Ammonia	1.04
Phosphate	0.95
Silicate	3.41

Chlorophyll 0.88 mg m^{-3}

Salinity - °/₀₀

		90% Confidence Interval lower	upper
α mg C(mg Chl a)$^{-1}$$hr^{-1}$(W m^{-2})$^{-1}$	0.09	0.08	0.10
R^B mg C(mg Chl a)$^{-1}$$hr^{-1}$	-0.04	-0.08	-0.01
P_m^B mg C(mg Chl a)$^{-1}$$hr^{-1}$	0.83	0.78	0.88

STATION L-5

Lat.: 59°25.1'N Long.: 59°13.0'W

Date: 20/10/77 Area: Labrador Sea Depth: 10 m

Light Intensity W m^{-2}	Specific Production mg C(mg Chl a)$^{-1}hr^{-1}$	Light Intensity W m^{-2}	Specific Production mg C(mg Chl a)$^{-1}hr^{-1}$
214.4	1.62	168.8	1.86
108.0	1.88	57.0	1.48
49.0	2.20	31.9	1.96
22.2	1.32	15.8	1.05
11.7	0.69	8.1	0.54
5.9	0.39	4.5	0.35
3.3	0.15	2.8	0.19
1.7	0.06	1.6	0.07
1.0	0.04	0.9	0.03
0.6	0.01	0.6	0.00

Sample Temperature: 4.9°C

Incubation Temperature: 8.0°C

	mg-at m^{-3}
Nitrate	7.96
Ammonia	1.34
Phosphate	0.91
Silicate	3.95

Chlorophyll 0.64 mg m^{-3}

Salinity - °/₀₀

		90% Confidence Interval lower	upper
α mg C(mg Chl a)$^{-1}hr^{-1}$(W m^{-2})$^{-1}$	0.08	0.07	0.09
R^B mg C(mg Chl a)$^{-1}hr^{-1}$	-0.04	-0.08	-0.01
P_m^B mg C(mg Chl a)$^{-1}hr^{-1}$	1.99	1.80	2.18

STATION L-5

Lat.: 59°25.1'N Long.: 59°13.0'W

Date: 20/11/77 Area: Labrador Sea Depth: 30 m

Light Intensity $W\ m^{-2}$	Specific Production mg C(mg Chl a)$^{-1}hr^{-1}$	Light Intensity $W\ m^{-2}$	Specific Production mg C(mg Chl a)$^{-1}hr^{-1}$
225.6	1.18	244.0	1.94
110.0	1.26	110.0	1.93
41.0	1.49	50.0	1.93
20.4	0.97	22.3	1.28
10.6	0.63	11.4	0.71
6.7	0.39	6.2	0.53
4.2	0.13	4.5	0.31
1.4	0.03	2.7	0.11
0.9	0.01	1.6	0.04
		1.2	0.01

Sample Temperature: 4.9°C

Incubation Temperature: 8.0°C

	mg-at m^{-3}
Nitrate	8.01
Ammonia	0.56
Phosphate	0.94
Silicate	3.94

Chlorophyll 0.62 mg m^{-3}

Salinity - °/₀₀

		90% Confidence Interval lower	upper
α mg C(mg Chl a)$^{-1}hr^{-1}(W\ m^{-2})^{-1}$	0.08	0.06	0.10
R^B mg C(mg Chl a)$^{-1}hr^{-1}$	-0.09	-0.17	-0.01
P_m^B mg C(mg Chl a)$^{-1}hr^{-1}$	1.95	1.82	2.08

STATION L-6

Lat.: 57°55.2'N Long.: 57°38.5'W

Date: 21/10/77 Area: Labrador Sea Depth: 10 m

Light Intensity $W\ m^{-2}$	Specific Production mg C(mg Chl a)$^{-1}hr^{-1}$	Light Intensity $W\ m^{-2}$	Specific Production mg C(mg Chl a)$^{-1}hr^{-1}$
223.2	1.90	230.4	1.21
106.0	1.63	124.0	1.38
52.0	1.78	56.0	1.23
22.7	1.07	23.4	1.03
11.7	0.63	12.1	0.54
5.3	0.34	7.3	0.27
3.2	0.14	4.1	0.15
1.8	0.07	2.4	0.05
1.1	0.03	1.6	0.02
0.7	0.01	1.2	0.01

Sample Temperature: 5.6°C

Incubation Temperature: 8.5°C

	mg-at m^{-3}
Nitrate	3.81
Ammonia	1.28
Phosphate	0.65
Silicate	4.82

Chlorophyll 0.76 mg m^{-3}

Salinity - °/₀₀

		90% Confidence Interval lower	upper
α mg C(mg Chl a)$^{-1}hr^{-1}(W\ m^{-2})^{-1}$	0.05	0.04	0.07
R^B mg C(mg Chl a)$^{-1}hr^{-1}$	-0.04	-0.09	0.01
P_m^B mg C(mg Chl a)$^{-1}hr^{-1}$	1.60	1.46	1.74

STATION L-6

Lat.: 57°55.2'N Long.: 57°38.5'W

Date: 21/10/77 Area: Labrador Sea Depth: 30 m

Light Intensity W m^{-2}	Specific Production mg C(mg Chl a)$^{-1}$$hr^{-1}$	Light Intensity W m^{-2}	Specific Production mg C(mg Chl a)$^{-1}$$hr^{-1}$
220.0	1.50	233.6	1.30
121.0	1.51	129.0	1.33
39.7	1.54	60.0	1.51
23.1	0.94	26.9	0.87
11.2	0.59	14.0	0.50
6.5	0.32	7.8	0.39
4.2	0.17	4.8	0.20
2.4	0.07	2.8	0.07
1.4	0.03	1.9	0.03
0.8	0.03	1.3	0.01

Sample Temperature: 5.6°C Incubation Temperature: 8.5°C

	mg-at m^{-3}
Nitrate	2.13
Ammonia	0.78
Phosphate	0.64
Silicate	4.89

Chlorophyll 0.82 mg m^{-3}

Salinity - °/₀₀

		90% Confidence Interval lower	upper
α mg C(mg Chl a)$^{-1}$$hr^{-1}$(W m^{-2})$^{-1}$	0.06	0.05	0.06
P_R^B mg C(mg Chl a)$^{-1}$$hr^{-1}$	-0.06	-0.08	-0.04
P_m^B mg C(mg Chl a)$^{-1}$$hr^{-1}$	1.51	1.42	1.60

STATION L-7

Lat.: 57°20.0'N Long.: 59°55.4'W

Date: 22/10/77 Area: Labrador Sea Depth: 10 m

Light Intensity $W\ m^{-2}$	Specific Production mg C(mg Chl a)$^{-1}hr^{-1}$	Light Intensity $W\ m^{-2}$	Specific Production mg C(mg Chl a)$^{-1}hr^{-1}$
237.6	1.68	236.8	1.46
133.0	1.76	129.0	1.20
57.0	1.78	56.0	1.68
26.6	1.36	25.7	1.26
13.8	0.72	14.2	0.73
6.6	0.38	8.3	0.47
3.8	0.15	4.5	0.23
2.2	0.07	2.5	0.08
1.3	0.04	1.5	0.02
0.8	0.02	1.0	0.01

Sample Temperature: -

Incubation Temperature: 7.0°C

	mg-at m^{-3}
Nitrate	0.21
Ammonia	1.05
Phosphate	0.62
Silicate	5.26

Chlorophyll 1.00 mg m^{-3}

Salinity - °/₀₀

		90% Confidence Interval lower	upper
α mg C(mg Chl a)$^{-1}hr^{-1}(W\ m^{-2})^{-1}$	0.06	0.06	0.07
R^B mg C(mg Chl a)$^{-1}hr^{-1}$	-0.06	-0.08	-0.04
I_m^B mg C(mg Chl a)$^{-1}hr^{-1}$	1.67	1.57	1.78

STATION L-7

Lat.: 57°20.0'N Long.: 59°55.4'W

Date: 22/10/77 Area: Labrador Sea Depth: 30 m

Light Intensity $W\ m^{-2}$	Specific Production mg C(mg Chl a)$^{-1}hr^{-1}$	Light Intensity $W\ m^{-2}$	Specific Production mg C(mg Chl a)$^{-1}hr^{-1}$
204.8	0.83	239.2	1.11
101.0	1.36	145.0	1.32
45.0	0.97	65.0	1.80
22.6	0.98	25.6	1.20
11.6	0.63	13.7	0.63
6.4	0.31	7.6	0.41
3.9	0.17	4.5	0.30
2.3	0.07	2.7	0.15
1.3	0.02	1.7	0.07
0.7	0.01	1.1	0.02

Sample Temperature: -

Incubation Temperature: 7.0°C

	mg-at m^{-3}
Nitrate	0.15
Ammonia	1.06
Phosphate	0.64
Silicate	5.37

Chlorophyll 0.62 mg m^{-3}

Salinity - °/₀₀

		90% Confidence Interval lower	upper
α mg C(mg Chl a)$^{-1}hr^{-1}(W\ m^{-2})^{-1}$	0.05	0.05	0.06
R^B mg C(mg Chl a)$^{-1}hr^{-1}$	-0.02	-0.05	0.02
P_m^B mg C(mg Chl a)$^{-1}hr^{-1}$	1.45	1.30	1.60

STATION L-8

Lat.: 57°37.5'N Long.: 58°38.7'W

Date: 23/10/77 Area: Labrador Sea Depth: 10 m

Light Intensity $W\ m^{-2}$	Specific Production mg C(mg Chl a)$^{-1}hr^{-1}$	Light Intensity $W\ m^{-2}$	Specific Production mg C(mg Chl a)$^{-1}hr^{-1}$
233.6	1.19	204.8	1.23
143.0	1.19	124.0	1.25
63.0	1.12	51.0	1.11
30.3	0.97	24.9	0.92
14.8	0.59	11.3	0.66
7.8	0.38	6.5	0.44
4.6	0.14	3.6	0.26
2.4	0.07	1.9	0.15
1.5	0.07	1.1	0.09
0.8	0.04	0.6	0.03

Sample Temperature: 5.2°C

Incubation Temperature: 4.0°C

	mg-at m^{-3}
Nitrate	4.59
Ammonia	0.60
Phosphate	0.64
Silicate	4.36

Chlorophyll 0.70 mg m^{-3}

Salinity - °/₀₀

		90% Confidence Interval lower	upper
α mg C(mg Chl a)$^{-1}hr^{-1}(W\ m^{-2})^{-1}$	0.05	0.04	0.07
K^B mg C(mg Chl a)$^{-1}hr^{-1}$	0.00	-0.06	0.06
P_m^B mg C(mg Chl a)$^{-1}hr^{-1}$	1.18	1.13	1.23

STATION L-8

Lat.: 57°37.5'N Long.: 58°38.7'W

Date: 23/10/77 Area: Labrador Sea Depth: 30 m

Light Intensity W m^{-2}	Specific Production mg C(mg Chl α)$^{-1}$hr^{-1}	Light Intensity W m^{-2}	Specific Production mg C(mg Chl α)$^{-1}$hr^{-1}
184.8	1.53	215.2	1.65
104.0	1.45	109.0	1.66
50.0	1.54	53.0	1.64
23.6	1.28	22.8	1.34
12.2	0.82	9.7	0.77
6.8	0.49	5.5	0.49
3.7	0.26	3.3	0.34
2.2	0.11	2.2	0.17
1.1	0.07	1.3	0.11
0.7	0.06	1.0	0.03

Sample Temperature: 5.2°C

Incubation Temperature: 4.0°C

	mg-at m^{-3}
Nitrate	2.98
Ammonia	1.17
Phosphate	0.62
Silicate	4.39

Chlorophyll 0.66 mg m^{-3}

Salinity - °/₀₀

		90% Confidence Interval lower	upper
α mg C(mg Chl α)$^{-1}$hr^{-1}(W m^{-2})$^{-1}$	0.08	0.07	0.10
R^B mg C(mg Chl α)$^{-1}$hr^{-1}	-0.02	-0.07	0.04
P_m^B mg C(mg Chl α)$^{-1}$hr^{-1}	1.60	1.56	1.65

STATION L-9

Lat.: 57°07.8'N Long.: 59°34.9'W

Date: 24/10/77 Area: Labrador Sea Depth: 10 m

Light Intensity W m^{-2}	Specific Production mg C(mg Chl a)$^{-1}hr^{-1}$	Light Intensity W m^{-2}	Specific Production mg C(mg Chl a)$^{-1}hr^{-1}$
180.8	1.20	193.6	1.22
47.0	1.14	46.0	1.00
13.6	1.40	21.8	0.99
9.2	0.87	12.6	1.06
5.4	0.51	7.4	0.51
1.8	0.32	3.2	0.43
1.5	0.10	2.7	0.14
0.8	0.04	1.7	0.03
0.6	0.03	1.1	0.02
0.4	0.01	0.5	0.00

Sample Temperature: 1.0°C Incubation Temperature: 6.0°C

	mg-at m^{-3}
Nitrate	2.49
Ammonia	0.68
Phosphate	0.69
Silicate	5.08

Chlorophyll 1.36 mg m^{-3}

Salinity - °/₀₀

		90% Confidence Interval lower	upper
α mg C(mg Chl a)$^{-1}hr^{-1}$(W m^{-2})$^{-1}$	0.12	0.06	0.19
R^B mg C(mg Chl a)$^{-1}hr^{-1}$	-0.07	-0.18	0.04
P^B_m mg C(mg Chl a)$^{-1}hr^{-1}$	1.24	1.13	1.35

STATION L-9

Lat.: 57°07.8'N Long.: 59°34.8'W

Date: 24/10/77 Area: Labrador Sea Depth: 30 m

Light Intensity $W\ m^{-2}$	Specific Production mg C(mg Chl a)$^{-1}hr^{-1}$	Light Intensity $W\ m^{-2}$	Specific Production mg C(mg Chl a)$^{-1}hr^{-1}$
204.8	1.11	250.4	1.09
44.0	0.84	137.0	1.10
30.8	1.36	59.0	1.19
16.9	0.79	24.2	0.70
8.6	0.52	11.7	0.36
4.0	0.20	4.2	0.20
3.1	0.12	3.6	0.12
2.0	0.06	2.5	0.06
1.3	0.02	1.7	0.04
0.7	0.01	1.1	0.01

Sample Temperature: 1.0°C Incubation Temperature: 6.0°C

	mg-at m^{-3}
Nitrate	1.53
Ammonia	1.30
Phosphate	0.69
Silicate	5.11

Chlorophyll 1.19 mg m^{-3}

Salinity - °/₀₀

		90% Confidence Interval lower	upper
α mg C(mg Chl a)$^{-1}hr^{-1}(W\ m^{-2})^{-1}$	0.04	0.03	0.06
R^B mg C(mg Chl a)$^{-1}hr^{-1}$	-0.02	-0.07	0.04
P^B_m mg C(mg Chl a)$^{-1}hr^{-1}$	1.15	1.04	1.28

STATION L-10

Lat.: 57°09.0'N Long.: 60°47.7'W

Date: 25/10/77 Area: Labrador Sea Depth: 10 m

Light Intensity W m^{-2}	Specific Production mg C(mg Chl a)$^{-1}hr^{-1}$	Light Intensity W m^{-2}	Specific Production mg C(mg Chl a)$^{-1}hr^{-1}$
200.0	0.96	214.4	1.24
105.0	1.25	104.0	1.19
48.0	1.17	47.0	1.25
24.2	0.76	22.3	0.86
12.4	0.41	10.8	0.51
7.6	0.22	6.3	0.30
4.2	0.09	3.6	0.13
2.6	0.04	2.1	0.05
1.4	0.02	1.4	0.02
0.8	0.01	0.8	0.01

Sample Temperature: -

Incubation Temperature: 4.0°C

	mg-at m^{-3}
Nitrate	3.27
Ammonia	0.60
Phosphate	0.89
Silicate	4.79

Chlorophyll 1.70 mg m^{-3}

Salinity - °/₀₀

		90% Confidence Interval lower	upper
α mg C(mg Chl a)$^{-1}hr^{-1}(W\ m^{-2})^{-1}$	0.04	0.03	0.04
R^B mg C(mg Chl a)$^{-1}hr^{-1}$	-0.02	-0.06	0.01
P_m^B mg C(mg Chl a)$^{-1}hr^{-1}$	1.31	1.23	1.38

STATION L-10

Lat.: 57°09.0'N Long.: 60°47.7'W

Date: 25/10/77 Area: Labrador Sea Depth: 30 m

Light Intensity W m^{-2}	Specific Production mg C(mg Chl a)$^{-1}$$hr^{-1}$	Light Intensity W m^{-2}	Specific Production mg C(mg Chl a)$^{-1}$$hr^{-1}$
215.2	1.42	208.3	1.83
109.0	1.74	112.0	1.60
43.0	1.81	58.0	1.54
22.7	1.16	25.5	1.11
10.6	0.52	11.7	0.60
6.5	0.26	6.4	0.33
4.1	0.17	4.2	0.19
2.4	0.07	2.8	0.05
1.3	0.04	1.6	0.03
0.7	0.01	0.9	0.01

Sample Temperature: -

Incubation Temperature: 4.0°C

	mg-at m^{-3}
Nitrate	1.95
Ammonia	0.74
Phosphate	0.84
Silicate	4.83

Chlorophyll 1.54 mg m^{-3}

Salinity - °/₀₀

		90% Confidence Interval lower	upper
α mg C(mg Chl a)$^{-1}$$hr^{-1}$(W m^{-2})$^{-1}$	0.05	0.05	0.06
R^B mg C(mg Chl a)$^{-1}$$hr^{-1}$	-0.05	-0.07	-0.03
P_m^B mg C(mg Chl a)$^{-1}$$hr^{-1}$	1.82	1.71	1.94

STATION L-11

Lat.: 56°30.7'N Long.: 59°49.6'W

Date: 26/10/77 Area: Labrador Sea Depth: 10 m

Light Intensity W m^{-2}	Specific Production mg C(mg Chl a)$^{-1}hr^{-1}$	Light Intensity W m^{-2}	Specific Production mg C(mg Chl a)$^{-1}hr^{-1}$
200.0	0.96	200.8	1.10
122.0	1.10	121.0	1.01
57.0	1.11	50.0	1.05
27.9	0.80	24.0	0.72
14.6	0.43	12.5	0.40
7.3	0.27	7.0	0.24
4.1	0.12	4.2	0.10
2.3	0.05	2.5	0.07
1.3	0.03	1.4	0.01
0.8	0.02		

Sample Temperature: 1.1°C

Incubation Temperature: 5.0°C

	mg-at m^{-3}
Nitrate	3.04
Ammonia	0.40
Phosphate	0.92
Silicate	4.76

Chlorophyll 0.92 mg m^{-3}

Salinity - °/₀₀

		90% Confidence Interval lower	upper
α mg C(mg Chl a)$^{-1}hr^{-1}(W\ m^{-2})^{-1}$	0.04	0.03	0.04
R^B mg C(mg Chl a)$^{-1}hr^{-1}$	-0.03	-0.05	-0.01
P^B_m mg C(mg Chl a)$^{-1}hr^{-1}$	1.13	1.10	1.16

STATION L-11

Lat.: 56°30.7'N Long.: 59°49.6'W

Date: 26/10/77 Area: Labrador Sea Depth: 30 m

Light Intensity $W\ m^{-2}$	Specific Production mg C(mg Chl a)$^{-1}hr^{-1}$	Light Intensity $W\ m^{-2}$	Specific Production mg C(mg Chl a)$^{-1}hr^{-1}$
196.8	1.21	194.4	1.11
101.0	1.30	112.0	1.15
38.7	1.42	59.0	1.35
20.5	0.83	23.2	0.76
9.9	0.51	10.9	0.47
5.9	0.25	6.7	0.25
3.5	0.13	4.1	0.15
2.1	0.06	2.5	0.09
1.1	0.04	1.5	0.04
0.7	0.01	1.0	0.04

Sample Temperature: 1.1°C Incubation Temperature: 5.0°C

	mg-at m^{-3}
Nitrate	3.47
Ammonia	1.08
Phosphate	0.94
Silicate	4.82

Chlorophyll 0.74 mg m^{-3}

Salinity - °/₀₀

		90% Confidence Interval lower	upper
α mg C(mg Chl a)$^{-1}hr^{-1}(W\ m^{-2})^{-1}$	0.05	0.04	0.05
R^B mg C(mg Chl a)$^{-1}hr^{-1}$	-0.03	-0.05	-0.01
P_m^B mg C(mg Chl a)$^{-1}hr^{-1}$	1.52	1.39	1.67

STATION L-12

Lat.: 56°34.9'N Long.: 57°28.3'W

Date: 27/10/77 Area: Labrador Sea Depth: 10 m

Light Intensity W m^{-2}	Specific Production mg C(mg Chl a)$^{-1}hr^{-1}$	Light Intensity W m^{-2}	Specific Production mg C(mg Chl a)$^{-1}hr^{-1}$
244.8	1.06	209.6	1.11
122.0	1.15	106.0	1.19
56.0	1.25	50.0	1.05
24.8	0.86	22.3	0.70
11.3	0.53	11.6	0.43
6.7	0.30	6.6	0.25
4.0	0.17	3.7	0.11
2.5	0.06	2.3	0.03
1.7	0.03	1.6	0.01
1.1	0.01	1.0	0.00

Sample Temperature: 2.2°C Incubation Temperature: 6.0°C

	mg-at m^{-3}
Nitrate	7.60
Ammonia	0.47
Phosphate	1.00
Silicate	4.54

Chlorophyll 0.78 mg m^{-3}

Salinity - °/₀₀

		90% Confidence Interval lower	upper
α mg C(mg Chl a)$^{-1}hr^{-1}$(W m^{-2})$^{-1}$	0.05	0.04	0.05
R^B mg C(mg Chl a)$^{-1}hr^{-1}$	-0.05	-0.08	-0.02
P_m^B mg C(mg Chl a)$^{-1}hr^{-1}$	1.25	1.18	1.31

STATION L-12

Lat.: 56°34.9'N Long.: 57°28.3'W

Date: 27/10/77 Area: Labrador Sea Depth: 30 m

Light Intensity W m^{-2}	Specific Production mg C(mg Chl a)$^{-1}hr^{-1}$	Light Intensity W m^{-2}	Specific Production mg C(mg Chl a)$^{-1}hr^{-1}$
222.8	1.15	178.4	1.02
102.0	1.31	68.0	1.14
43.0	1.18	31.9	1.34
22.3	0.85	14.8	0.80
10.7	0.46	7.9	0.45
6.4	0.30	4.6	0.25
3.8	0.17	2.8	0.12
2.5	0.06	1.6	0.05
1.5	0.02	0.9	0.01
0.9	0.01	0.6	0.00

Sample Temperature: 2.4°C Incubation Temperature: 6.0°C

	mg-at m^{-3}
Nitrate	7.71
Ammonia	0.38
Phosphate	1.00
Silicate	4.43

Chlorophyll 0.67 mg m^{-3}

Salinity - °/₀₀

		90% Confidence Interval lower	upper
α mg C(mg Chl a)$^{-1}hr^{-1}$(W m^{-2})$^{-1}$	0.06	0.05	0.06
R^B mg C(mg Chl a)$^{-1}hr^{-1}$	-0.04	-0.06	-0.02
P_m^B mg C(mg Chl a)$^{-1}hr^{-1}$	1.38	1.29	1.49

STATION L-13

Lat.: 56°21.6'N

Long.: 57°06.9'W

Date: 28/10/77

Area: Labrador Sea

Depth: 10 m

Light Intensity W m^{-2}	Specific Production mg C(mg Chl a)$^{-1}hr^{-1}$	Light Intensity W m^{-2}	Specific Production mg C(mg Chl a)$^{-1}hr^{-1}$
232.8	1.42	196.0	1.52
120.0	1.38	104.0	1.28
52.0	1.49	44.0	1.31
25.6	1.08	18.4	0.80
14.2	0.59	9.1	0.48
7.3	0.34	6.0	0.28
4.1	0.16	3.5	0.12
2.2	0.07	2.1	0.08
1.3	0.05	1.3	0.02
0.9	0.02	0.8	0.01

Sample Temperature: 5.4°C

Incubation Temperature: 7.5°C

	mg-at m^{-3}
Nitrate	7.27
Ammonia	0.75
Phosphate	1.06
Silicate	4.20

Chlorophyll 0.74 mg m^{-3}

Salinity - °/₀₀

		90% Confidence Interval lower	upper
α mg C(mg Chl a)$^{-1}hr^{-1}$(W m^{-2})$^{-1}$	0.05	0.05	0.06
R^B mg C(mg Chl a)$^{-1}hr^{-1}$	-0.04	-0.06	-0.02
P^B_m mg C(mg Chl a)$^{-1}hr^{-1}$	1.47	1.42	1.52

STATION L-13

Lat.: 56°21.6'N

Long.: 57°06.9'W

Date: 28/10/77

Area: Labrador Sea

Depth: 30 m

Light Intensity $W\ m^{-2}$	Specific Production mg C(mg Chl a)$^{-1}hr^{-1}$	Light Intensity $W\ m^{-2}$	Specific Production mg C(mg Chl a)$^{-1}hr^{-1}$
204.0	1.32	165.6	1.13
96.0	1.60	91.0	1.34
45.0	1.37	45.0	1.31
21.1	0.93	18.9	0.83
10.1	0.58	9.4	0.41
6.0	0.31	6.0	0.26
3.6	0.21	4.5	0.16
2.1	0.08	2.4	0.05
1.4	0.04	1.6	0.03
0.8	0.03	1.2	0.02

Sample Temperature: 5.4°C

Incubation Temperature: 7.5°C

	mg-at m^{-3}
Nitrate	7.29
Ammonia	0.50
Phosphate	1.04
Silicate	4.20

Chlorophyll 0.70 mg m^{-3}

Salinity - °/₀₀

		90% Confidence Interval lower	upper
α mg C(mg Chl a)$^{-1}hr^{-1}(W\ m^{-2})^{-1}$	0.06	0.05	0.06
R^B mg C(mg Chl a)$^{-1}hr^{-1}$	-0.04	-0.08	-0.01
P_m^B mg C(mg Chl a)$^{-1}hr^{-1}$	1.42	1.34	1.49

STATION L-14

Lat.: 55°14.1'N Long.: 58°03.8'W

Date: 29/10/77 Area: Labrador Sea Depth: 10 m

Light Intensity W m^{-2}	Specific Production mg C(mg Chl a)$^{-1}hr^{-1}$	Light Intensity W m^{-2}	Specific Production mg C(mg Chl a)$^{-1}hr^{-1}$
253.6	1.42	196.0	1.67
111.0	1.43	65.0	1.50
45.0	1.36	30.9	1.49
22.6	1.09	17.5	0.63
13.2	0.60	9.4	0.34
6.7	0.32	5.8	0.17
3.4	0.14	3.4	0.09
2.0	0.05	2.1	0.03
1.0	0.03	1.2	0.01
0.6	0.01	0.7	0.01

Sample Temperature: -

Incubation Temperature: 6.0°C

	mg-at m^{-3}
Nitrate	1.84
Ammonia	0.68
Phosphate	0.42
Silicate	4.29

Chlorophyll 0.64 mg m^{-3}

Salinity - °/₀₀

		90% Confidence Interval lower	upper
α mg C(mg Chl a)$^{-1}hr^{-1}$(W m^{-2})$^{-1}$	0.04	0.04	0.06
R^B mg C(mg Chl a)$^{-1}hr^{-1}$	-0.03	-0.07	0.00
P_m^B mg C(mg Chl a)$^{-1}hr^{-1}$	1.60	1.48	1.72

STATION L-14

Lat.: 55°14.1'N Long.: 58°03.8'W

Date: 29/10/77 Area: Labrador Sea Depth: 30 m

Light Intensity $W\ m^{-2}$	Specific Production mg C(mg Chl a)$^{-1}hr^{-1}$	Light Intensity $W\ m^{-2}$	Specific Production mg C(mg Chl a)$^{-1}hr^{-1}$
200.0	1.20	193.6	1.26
67.0	1.13	66.0	1.20
23.6	1.18	25.1	1.27
14.6	0.83	14.3	0.65
7.4	0.45	7.8	0.32
4.9	0.24	4.6	0.20
3.0	0.14	3.3	0.12
1.8	0.07	2.3	0.06
1.1	0.04		
0.7	0.01		

Sample Temperature: -

Incubation Temperature: 6.0°C

	mg-at m^{-3}
Nitrate	1.56
Ammonia	0.74
Phosphate	0.56
Silicate	4.87

Chlorophyll 0.61 mg m^{-3}

Salinity - °/₀₀

		90% Confidence Interval lower	upper
α mg C(mg Chl a)$^{-1}hr^{-1}(W\ m^{-2})^{-1}$	0.05	0.04	0.05
R^B mg C(mg Chl a)$^{-1}hr^{-1}$	-0.02	-0.04	0.01
P_m^B mg C(mg Chl a)$^{-1}hr^{-1}$	1.28	1.14	1.42

STATION L-15

Lat.: 55°43.3'N

Long.: 54°20.3'W

Date: 30/10/77

Area: Labrador Sea

Depth: 10 m

Light Intensity W m^{-2}	Specific Production mg C(mg Chl a)$^{-1}hr^{-1}$	Light Intensity W m^{-2}	Specific Production mg C(mg Chl a)$^{-1}hr^{-1}$
240.8	1.56	203.2	2.02
116.0	1.56	89.0	1.41
63.0	1.67	44.0	1.19
25.3	0.91	20.7	0.84
11.3	0.47	9.6	0.41
4.3	0.29	3.6	0.25
2.5	0.12	2.5	0.16
1.3	0.04	1.4	0.05
0.7	0.02	0.8	0.02
0.4	0.01	0.5	0.01

Sample Temperature: 5.0°C

Incubation Temperature: 8.0°C

	mg-at m^{-3}
Nitrate	5.70
Ammonia	0.47
Phosphate	0.51
Silicate	4.54

Chlorophyll 0.77 mg m^{-3}

Salinity - °/₀₀

		90% Confidence Interval lower	upper
α mg C(mg Chl a)$^{-1}hr^{-1}$(W m^{-2})$^{-1}$	0.08	0.07	0.08
R^B mg C(mg Chl a)$^{-1}hr^{-1}$	-0.04	-0.06	-0.02
P^B_m mg C(mg Chl a)$^{-1}hr^{-1}$	1.58	1.41	1.74

STATION L-15

Lat.: 55°43.3'N

Long.: 54°20.3'W

Date: 30/10/77

Area: Labrador Sea

Depth: 30 m

Light Intensity W m^{-2}	Specific Production mg C(mg Chl a)$^{-1}$$hr^{-1}$	Light Intensity W m^{-2}	Specific Production mg C(mg Chl a)$^{-1}$$hr^{-1}$
194.4	1.84	178.4	1.65
100.0	1.76	89.0	1.62
45.0	1.47	48.0	1.28
20.1	0.87	22.4	0.77
8.2	0.50	10.5	0.51
3.1	0.25	3.9	0.27
2.1	0.16	2.9	0.17
1.4	0.05	1.8	0.08
0.8	0.01	1.0	0.04
		0.6	0.02

Sample Temperature: 5.0°C

Incubation Temperature: 8.0°C

	mg-at m^{-3}
Nitrate	6.19
Ammonia	0.38
Phosphate	0.54
Silicate	4.57

Chlorophyll 0.68 mg m^{-3}

Salinity - °/₀₀

		90% Confidence Interval lower	upper
α mg C(mg Chl a)$^{-1}$$hr^{-1}$(W m^{-2})$^{-1}$	0.08	0.07	0.10
P^B mg C(mg Chl a)$^{-1}$$hr^{-1}$	-0.05	-0.08	-0.02
P^B_m mg C(mg Chl a)$^{-1}$$hr^{-1}$	1.60	1.44	1.77

STATION L-16

Lat.: 53°07.6'N Long.: 53°22.4'W

Date: 31/10/77 Area: Labrador Sea Depth: 10 m

Light Intensity W m^{-2}	Specific Production mg C(mg Chl a)$^{-1}hr^{-1}$	Light Intensity W m^{-2}	Specific Production mg C(mg Chl a)$^{-1}hr^{-1}$
242.4	1.05	184.8	1.10
128.0	1.13	93.0	1.00
60.0	0.89	45.0	0.84
29.6	0.70	22.0	0.57
14.5	0.38	11.3	0.30
5.3	0.23	3.7	0.17
2.9	0.10	2.8	0.12
1.5	0.05	1.5	0.04
		0.8	0.03
		0.4	0.02

Sample Temperature: 1.9°C

Incubation Temperature: 6.0°C

	mg-at m^{-3}
Nitrate	5.56
Ammonia	0.40
Phosphate	0.94
Silicate	5.54

Chlorophyll 0.72 mg m^{-3}

Salinity - °/₀₀

		90% Confidence Interval lower	upper
α mg C(mg Chl a)$^{-1}hr^{-1}$(W m^{-2})$^{-1}$	0.05	0.04	0.05
R^B mg C(mg Chl a)$^{-1}hr^{-1}$	-0.01	-0.03	0.01
P_m^B mg C(mg Chl a)$^{-1}hr^{-1}$	0.99	0.91	1.08

STATION L-16

Lat.: 55°07.6'N

Long.: 53°22.4'W

Date: 31/10/77

Area: Labrador Sea

Depth: 30 m

Light Intensity $W\ m^{-2}$	Specific Production mg C(mg Chl α)$^{-1}$hr^{-1}	Light Intensity $W\ m^{-2}$	Specific Production mg C(mg Chl α)$^{-1}$hr^{-1}
179.2	1.01	174.4	0.85
87.0	0.93	77.0	0.90
41.0	1.08	32.2	0.76
19.9	0.70	16.9	0.69
9.2	0.32	9.8	0.26
3.7	0.16	4.2	0.23
2.4	0.11	2.7	0.15
1.4	0.07	1.6	0.08
0.8	0.05	1.2	0.01
0.4	0.01		

Sample Temperature: 2.0°C

Incubation Temperature: 6.0°C

	mg-at m^{-3}
Nitrate	5.87
Ammonia	1.07
Phosphate	0.93
Silicate	5.80

Chlorophyll 0.53 mg m^{-3}

Salinity - °/₀₀

		90% Confidence Interval lower	upper
α mg C(mg Chl α)$^{-1}$hr^{-1}(W m^{-2})$^{-1}$	0.06	0.04	0.07
R^B mg C(mg Chl α)$^{-1}$hr^{-1}	-0.01	-0.04	0.02
P^B_m mg C(mg Chl α)$^{-1}$hr^{-1}	0.96	0.88	1.04

TABLES

TOTAL DAILY RADIATION

Date	langleys day^{-1}
15/10/77	106
16/10/77	34
17/10/77	53
18/10/77	130
19/10/77	138
20/10/77	89
21/10/77	119
22/10/77	76
23/10/77	89
24/10/77	72
25/10/77	65
26/10/77	87
27/10/77	33
28/10/77	90
29/10/77	84
30/10/77	83
31/10/77	89

SURFACE INCUBATION EXPERIMENTS - PRODUCTION AND RADIATION

Date	Station	Production Rate mg C $m^{-3}h^{-1}$	Total Radiation langleys h^{-1}
15/10/77	L-1	2.02	14.50
16/10/77	L-2	2.06	4.25
17/10/77	L-3	1.12	7.75
19/10/77	L-4	1.23	13.00
20/10/77	L-5	0.84	15.50
21/10/77	L-6	0.93	21.25
22/10/77	L-7	1.15	10.50
23/10/77	L-8	0.68	14.75
24/10/77	L-9	0.73	12.25
25/10/77	L-10	1.09	11.75
26/10/77	L-11	0.96	15.25
27/10/77	L-12	0.74	6.00
28/10/77	L-13	0.80	16.00
29/10/77	L-14	0.79	16.50
30/10/77	L-15	0.82	14.00
31/10/77	L-16	0.65	14.50

SURFACE INCUBATION EXPERIMENTS - NUTRIENTS

Date	Station	Nitrate mg-at m^{-3}	Silicate mg-at m^{-3}	Phosphate mg-at m^{-3}	Ammonia mg-at m^{-3}
15/10/77	L-1	1.05	2.30	0.47	2.46
16/10/77	L-2	1.09	2.17	0.45	1.10
17/10/77	L-3	2.38	2.60	0.53	1.16
19/10/77	L-4	1.84	2.88	1.17	1.84
20/10/77	L-5	7.94	3.95	0.91	2.04
21/10/77	L-6	3.31	4.87	0.65	0.92
22/10/77	L-7	0.34	5.25	0.66	1.41
23/10/77	L-8	1.84	5.42	0.68	1.12
24/10/77	L-9	0.82	5.10	0.70	1.14
25/10/77	L-10	2.62	4.85	0.83	0.84
26/10/77	L-11	3.70	4.78	0.99	0.70
27/10/77	L-12	7.64	4.60	1.03	0.50
28/10/77	L-13	7.28	4.21	1.11	0.41
29/10/77	L-14	0.76	4.29	0.47	0.59
30/10/77	L-15	5.36	4.59	0.50	0.46
31/10/77	L-16	5.87	5.80	0.93	0.62

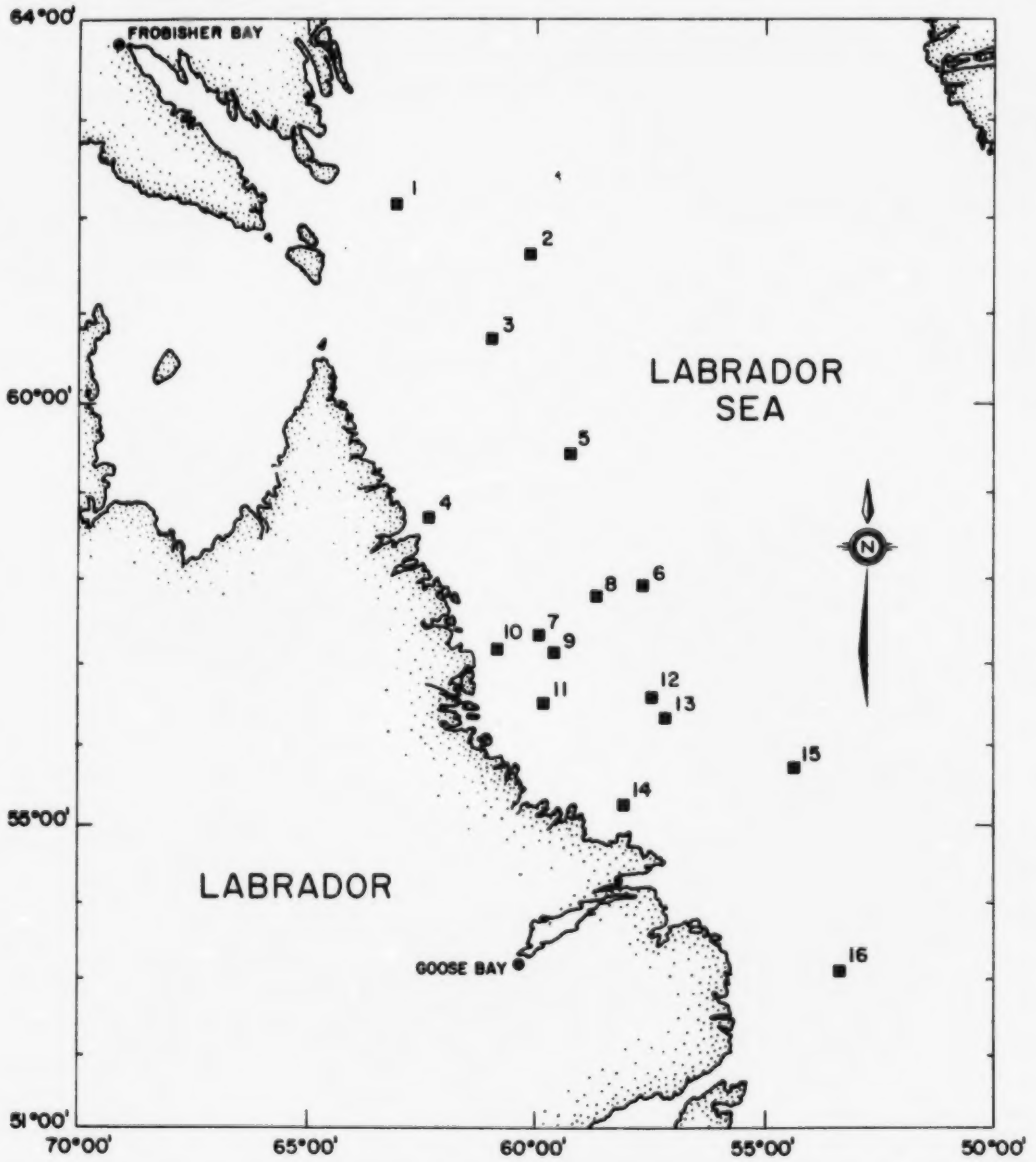

Fig. 1. Station positions in the Labrador Sea.